Addressing Rural Health Needs

HALDIMAND AND NORFOLK

Acknowledgements

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Development of a Rural Health Framework: Implications for Program Service Planning and Delivery

SUMMARY

1.0 Abstract

Purpose: To develop an evidence-based rural health framework to guide rural health program, policy and service planning.

Methods: A literature review of rural health programs, focusing on health promotion, chronic disease prevention, and population health, was conducted using several bibliographic databases.

Findings: Thirty articles met the criterion for review, describing chronic disease interventions and public health policies in rural settings. Twenty-one papers demonstrated effective intervention programs and highlighted potential good practices for rural health programs, which were used to define key elements of a rural health framework.

Conclusions: The rural health framework was applied to an influenza immunization program to demonstrate its utility in assisting public health providers to increase uptake of the vaccine. This rural health framework provides an opportunity for program planners to reflect on the key issues facing rural communities to ensure the development of policies and strategies that will prudently and effectively meet population health needs.

INTRODUCTION:

In Canada, more than nine million people live in rural areas, representing 30.4% of the population, and rural areas constitute 95% of the land mass (Society of Rural Physicians of Canada 2003; Public Health Agency of Canada 2008). Rural populations are understood to have different levels of health status than their urban counterparts.(Fertman et al 2005; Romanow 2002). Challenges related to low income, poverty, lower levels of education, higher unemployment, and geography (long distances, low population density and widely dispersed population) affect health status more negatively in rural areas than in urban settings and put rural Canadians at greater risk of having a poorer quality of life and poorer health (Public Health Agency of Canada 2008; Romanow 2002; Hart et al 2005; Desmeules et al 2006; Smith et al 2008).

In Canada, the prevailing theoretical model that guides health policy and program planning from a chronic disease perspective is the Population Health Promotion Model (Public Health Agency of Canada 2002; Lefebvre et al 2006), which emphasizes the need to account for all health determinants and to view health as a multi-faceted concept in which individuals' emotional, spiritual, physical, and psychological needs must be met to experience optimal health. The key assumptions that underpin this model illustrate how the relationship between population health and health promotion acts on a full range of health determinants through health promotion strategies and interventions. However, despite an abundance of health-related data at the federal, provincial, and territorial levels, most do not include meaningful or purposeful rural data (Romanow 2002). Population health data describe the health status of the population, but do not usually explore the social determinants of health and policies underpinning variations in rural and urban health (Hart et al 2005) An understanding of rural health determinants is vital if health promotion policies and strategies are to result in significant improvements in health status. Currently, policies and strategies for improving rural health are not typically evidence-based and tend to emphasize the need for improving access to health care services rather than on government and community policies related to rural health determinants of health (Romanow 2002; Smith et al 2008). There is a dearth of information on best practices in rural health program planning and delivery posing a major challenge for researchers and community planners. The development of a framework that illustrates rural best practices with linkages to the social determinants of health is essential to providing high-impact programs and services. There is a growing body of evidence that these health determinants can be used to plan, sustain, and improve rural health (Simon-Morton et al 1995; Public Health Agency of Canada 2002).

This paper describes the development and application of a rural health framework, building on the Population Health Framework to guide evidence-based rural health program, policy and service planning. This framework is applied to an immunization program implemented by a Public Health Unit in southwestern Ontario, Canada.

METHODS

To develop this rural health framework, a literature review was conducted to identify effective rural health programs in relation to the social determinants of health, rural policy implications for public health, and best practices in rural health interventions. This review was conducted using several on-line bibliographic databases (Academic Search Premier, Pub Med, and CINAHL) and using the following key words: intervention, prevention, systematic review, best practice, health promotion, public health, rural, remote, farming, small town, aboriginal health, on- and off-reserve communities, chronic disease, heart health, cardiovascular disease, tobacco control, COPD, asthma, diabetes, mental health, and depression along with their risk factors including healthy eating, active living, and social determinants of health. [A more detailed outline of the search terms and parameters are available from the author]. Searched literature covered the period from 1998 to 2008 in English language journals. Grey literature was not included because initial searches produced limited results on rural health interventions for chronic disease management.

Journal articles were retained for further analysis when they were: 1) relevant to health promotion and chronic disease prevention, 2) relevant to population health, and 3) focused on primary and secondary prevention rather than tertiary prevention. The limited number of Canadian-based articles forced the inclusion of international publications from developed countries. As there were no standardized or consistent definitions of "rural", for the purposes of this review, the authors' definitions and criteria of rural were accepted as meaningful in the context of their work.

For each article included in the review, information was gathered consistent with the Population Health Promotion Model (Public Health Agency of Canada 2002), namely the social determinants of health, the various levels within society at which health promotion activities were targeted (individual, family and community level, sector/ system levels and society as a whole) and the strategies used for health promotion. In addition, information was gathered on the specific health topic, geographic location, purpose, methods, existence of evaluation data, study methods, results (effectiveness), and conclusions.




RESULTS

In total, 30 articles met the criterion for review (see Appendix A). Articles covered a number of health issues including smoking (N = 3; Avidano Britton et al 2005; Cupertino et al 2007; Hayward et al 2007), physical activity (N = 2; Balamurugan et al 2007; Sherman et al 2007), substance use (N = 1; Zavela et al 2004), and various chronic diseases: diabetes (N = 8; Daniel et al 1999; Davis-Smith et al 2007; Ho et al 2006; Jin et al 2003; Mayer et al 2004; Potvin et al 2002; Summersett et al 2003; Virani et al 2006), cancer (N = 1; Cotterill et al 2005), heart health (N = 5; Ebbesen et al 1997; Huot et al 2004; MacDonald 1999; Nafziger et al 2001; Weinehall et al 2001), policy (N = 5; Berkowitz et al 2002; Berkowitz 2004; Estey et al 2007; Hart et al 2005; Schumaker 2002)), chronic disease (N=1;Fogelhom et al 2006) mental health (N = 3; Greenberg et al 2006; Kaufman et al 2007; Thomas & Bellefeuille 2006), and injury (N = 1; Lee et al 2004). Thirteen (43%) articles were Canadian-based while others represented the United States (N = 14; 47%) and Scandinavia (N = 3; 10%).

Twenty-one (80.8%) of the 26 papers that evaluated rural health interventions demonstrated effective programs, and highlighted potential best practices for rural health programs (five programs were not found to be effective or have yet to be proven effective; five papers describing health policy were not evaluative). In terms of determinants of health, the majority of papers addressed health services (N = 27; 90%), and personal health practices and coping skills (N = 20; 67%). Other health determinants included: social environments (N = 13; 43%), culture (Aboriginal communities; N = 5; 17%), physical environments (N = 4; 13%), social support networks (N = 1; 3%) and education (N = 1; 3%). The number of health promotion strategies employed as outlined by the Population Health Promotion Model (Public Health Agency of Canada 2002) ranged from one to three per intervention. Of the 21 papers that described effective health interventions, the majority involved the creation of supportive environments (N = 15; 71%) and personal skill development (N = 14; 67%); two involved the development of healthy public policy (10%) and nine (43%) involved the reorientation of health services. The majority of these interventions were targeted at community (N = 18; 86%) and individual (N = 12; 57%) levels; ten (48%) were targeted at a sector/ system level and five (24%) at a societal level.

A number of good practices for rural health interventions were identified in the reviewed papers; these practices are summarized in Table 1. Authors of an effective diabetes prevention program targeted to aboriginal communities (Ho et al 2006) suggested that multiple strategies be utilized for tailoring interventions to: 1) change social norms by intervening in multiple institutions; 2) address salient concerns; 3) balance community learning preferences with proven strategies; 4) emphasize active community participation; and 5) tailor programs to individual communities. Combining multiple levels of intervention (school-based, store-based, and community-wide health), integrating theoretical frameworks, and encouraging active involvement of community members with local cultural concepts were factors identified as important to the success of community-based programs.

In application to rural settings, a theme arising from the literature was the need for programs and models established in urban settings to be modified to suit rural populations (Potvin et al 2002; Greenberg et al 2006; Zavela et al 2004) as, for example, with the implementation of programs by health professionals other than just physicians and specialists to provide clinical services (Virani et al 2006; Jin et al 2003), modification of written materials to match the literacy levels of rural populations with the use of culturally appropriate examples (Mayer et al 2004), and modified intervention activities (e.g., number and duration of physical exercise sessions) selection criteria, and levels of available support to meet the unique needs of rural populations (Davis-Smith et al 2007). As an example, an effective heart health promotion initiative offered condensed programs in order to match the seasonal rhythm of rural Saskatchewan; this six-week program was designed so that participants could complete it before the seeding of crops (Ebbesen et al 1997).

Six articles referred to a rural research perspective on public health that has implications for policy. The common themes in the articles were community leadership and capacity, participation, community asset identification, integrated healthcare systems, rural health service delivery models, information technology, organizational networks, rural health definitions, and life course research, all aimed at contributing to effective rural health planning to improve health outcomes in rural communities (Hart et al 2005; Berkowitz et al 2002; Berkowitz 2004; Schumaker 2002).

ELEMENTS OF BEST PRACTICES FOR RURAL HEALTH PROGRAM PLANNING AND DELIVERY

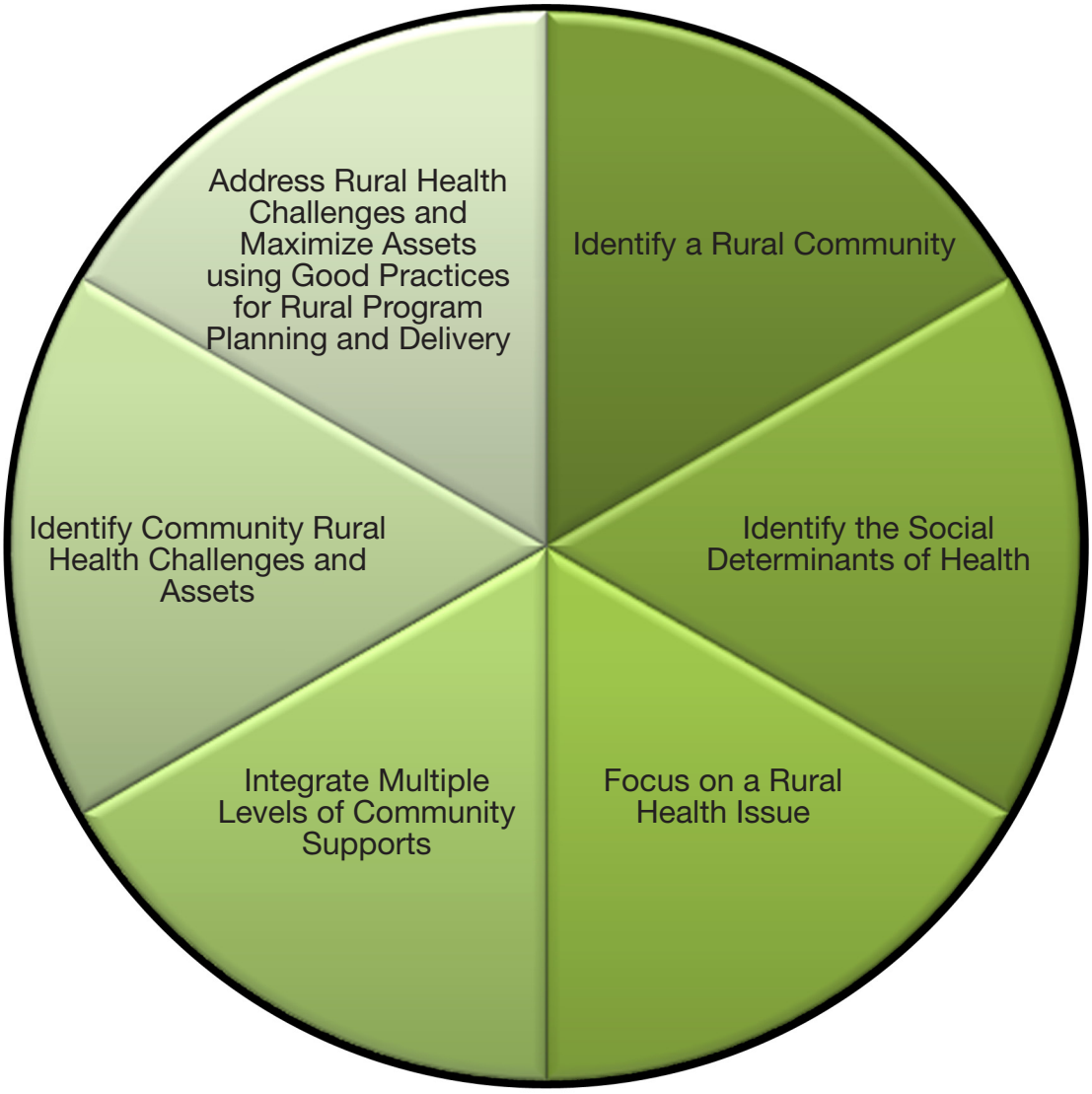
A Rural Health Framework

From a population health approach, good practices and themes identified in the literature defined six key elements (described below) for rural health population program planning and delivery that can be used to guide the development of rural health programs and which form the foundation of the a rural health framework. This framework is depicted in Figure 1.

Rural Health Framework for Program Planning and Delivery

Best practices identified in the literature review define six key elements for rural health program planning and delivery. These key elements can be used as a guideline for rural health program planners.

Figure 1: Rural Health Framework for Program Planning and Delivery



1. KEY ELEMENT ONE: IDENTIFY A RURAL COMMUNITY

A rural population health approach identifies rural areas using a common definition. Although there is no consensus on a standardized definition, the definition selected is at the discretion of the program planner. Is population density the defining concern, or is it geographic isolation? Is it small population size that makes it necessary to distinguish rural from urban? If so, how small is rural? Is there a socio-economic dimension that differentiates the two? For the purpose of this paper, seven definitions from Statistics Canada were used.

There are seven main approaches to defining rural areas in Canada including: Census Rural, Rural and Small Town, Census Metropolitan area and Census Agglomeration-Influenced Zones (MIZ), Organization of Economic Co-operation and Development (OECD) Rural Communities, OECD Predominantly Rural Regions, Beale non-metropolitan regions, and Rural Postal Codes (Statistics Canada, 2001). Each definition emphasizes different criteria such as population size, labour market context, population density, or settlement context (Statistics Canada, 2001). The definitions are listed below.

Census rural: Individuals living in the countryside outside centres with populations of 1,000 or more.

Rural and small town: Individuals in towns or municipalities outside the commuting zone of larger urban centres (with 10,000 or more population). These individuals may be disaggregated into zones according to the degree of influence of a larger urban centre, called census metropolitan area and census agglomeration-influenced zones (MIZ).

Census Metropolitan area and Census Agglomeration-Influenced Zones (MIZ): This refers to a municipality that is assigned one of four categories depending on the percentage of its resident employed labour force that commutes to work in the urban core of any census metropolitan area or census agglomeration. Census subdivisions are assigned to a (MIZ) category to include:

1. Strong MIZ: at least 30% of the municipality's resident employed labour force commutes to work in any CMA or CA.
2. Moderate MIZ: at least 5%, but less than 30% of the municipality's resident employed labour force commutes to work in any CMA or CA.
3. Weak MIZ: more than 0%, but less than 5% of the municipality resident employed labour force commutes to work in any CMA or CA.
4. No MIZ: fewer than 40 individuals or none of the municipality's resident employed labour force commutes to work in any CMA or CA.

Organization of Economic Co-operation and Development (OECD) rural communities: Individuals in communities with fewer than 150 persons per square kilometre. This includes those living in the countryside, towns, and small cities (inside and outside the commuting zone of larger urban centres).

OECD predominantly rural regions: Individuals in census divisions with over 50% of the population living in OECD rural communities. This includes all census divisions without a major city.

Beale non-metropolitan regions: Individuals living outside metropolitan regions with urban centres of 50,000 or more.

Rural postal codes: Individuals with a "0" as the second character in their postal code. These individuals live in areas with no letter carriers, so they pick up their mail at a post office or street postal box.

2. KEY ELEMENT TWO: REVIEW THE SOCIAL DETERMINANTS OF HEALTH

A rural population health approach considers a full range of factors that influence and contribute to health, known as the social determinants of health (Public Health Agency of Canada, 2006). The social determinants of health are most responsible for health inequities, and include:

Social environments: These are relationships among individuals and their families, peers, communities, and workplaces. Societal norms and values influence the health status of populations. Social stability, good working relationships, safety, recognition, diversity, and cohesive communities provide a supportive environment that promotes health. Effective social and community responses can add resources to an individual's choices of strategies to cope with changes and improve health (e.g., community interventions).

Examples: social stability, good working relationships, safety, recognition, diversity, cohesive and supportive communities, domestic violence, and crime

Income and social status: There is strong and growing evidence that higher social and economic status is associated with better health. In fact, these two factors seem to be the most common determinants of health.

Examples: food insecurity, poverty, housing, unemployment, underemployment, unaffordable childcare, and high income

Education and literacy: People with higher levels of education have better access to healthy physical environments for their families. Canadians with low literacy skills are more likely to be unemployed and poor, to suffer poorer health, and to die earlier than Canadians with high levels of literacy.

Examples: highest levels of education achieved, and literacy levels

Employment/working conditions: Employment provides not only money but also a sense of identity and purpose, social contracts, and opportunities for personal growth. Unemployed people have a reduced life expectancy and suffer significantly more health problems.

Examples: unemployment, underemployment, physical and psychological conditions at work, job satisfaction, work stress, sense of identity and purpose, opportunities for personal goals, recognition, social contact, and workplace health and safety

Physical environment: In the natural environment at certain levels of exposure, contaminants in our air, water, food, and soil can cause a variety of adverse health effects. In the built environment, factors related to housing, indoor air quality, and the design of communities and transportation systems can significantly influence our physical and psychological well-being.

Examples of the natural environment: air, food, water, soil, ultraviolet radiation, second-hand smoke, green space, open spaces, landscape, and trails.

Examples of the built environment: housing, indoor air quality, residential, commercial, roads, sidewalks, population density, institutional and industrial buildings, transportation, distance to health-care providers, amenities, and other services.

Personal health practices and coping skills: There is growing recognition that personal health choices are generally influenced by the socio-economic environments in which people live, learn, work, and play.

Examples: physical inactivity, poor nutrition, alcohol/drug misuse, drinking and driving, unsafe sex practices, smoking, risky behaviours, violence, and coping skills

Culture: Some persons or groups may face additional health risks due largely to a socio-economic environment defined by dominant cultural values that may perpetuate conditions such as marginalization, stigmatization, loss or devaluation of language and culture, and lack of access to culturally sensitive health care and services.
Examples: First Nations, Low German-speaking Mennonites, immigrants, and refugees

Health services: Health services designed to maintain and promote health, prevent disease, and restore health and function contribute to population health.

Examples: chronic disease prevention approaches and programs, hospitals, access to health care, number of physicians and specialists, diagnostic equipment, and emergency services

Healthy child development: The effect of prenatal and early childhood experiences on health in later life, well-being, coping skills, and competence is very powerful. Positive stimulation in life improves learning, behaviour, and health into adulthood.

Examples: growth and development, school readiness, access to health-care services, nutritious foods, genetic make-up, physical recreation, birth weight, childhood illness and disease, positive parenting, and childhood immunization.

Biology and genetic endowment: The basic biology and organic make-up of the human body are fundamental determinants of health. Genetic endowment provides an inherited predisposition to a

wide range of responses that affect health status and appear to predispose certain individuals to particular diseases and health problems.

Examples: genetic predisposition to chronic conditions, diseases, and disabilities

Social support networks: The health effects of social relationships may be as important as established risk factors such as smoking, physical activity, obesity, and high blood pressure. This includes support from families, friends, and communities.

Examples: social contacts, emotional support, and social participation
Gender: Refers to an array of society-determined roles, personality traits, attitudes, behaviours, values, relative power, and influence that society ascribes to the two sexes on a differential basis. "Gendered" norms influence a health system's practices and priorities.

Examples: Men are more likely than women to die prematurely; women are more likely to suffer from depression, stress overload (often due to efforts to balance work and family life), chronic conditions such as arthritis and allergies, and injuries and death from family violence.

Additional Resources: Public Health Agency of Canada (2003). What makes Canadians Healthy or Unhealthy? Retrieved July 14, 2011 from http://www.phac-aspc.gc.ca/ph-sp/determinants/determinants-eng.php#income

3. KEY ELEMENT THREE: FOCUS ON A RURAL HEALTH ISSUE

A rural population health approach uses evidence to assess the health status of the population and respond to the needs of the population. Evidence-informed practice uses population health assessments, surveillance, research, and program evaluation to generate evidence. It answers the following questions:

- How healthy is the rural population? How do you know?
- What are the community's priorities? Are there any emerging issues?
- What are the priority populations?
- How does the health of the population look over time? Is the population health status getting worse or better?

Evidence of informed practice can be obtained from several data sources and methods:

Population health assessments: These measure, monitor, and report on the status of a population's health, including determinants of health and health inequities (Ontario Public Health Standards, 2008). They provide information about the health of the population of interest through the ongoing maintenance of population health profiles, by monitoring the impacts of programs, and by identifying rural health challenges and assets (Ontario Public Health Standards, 2008). To measure population health, population health assessments use indicators. These are single measures (usually expressed in numbers) that illustrate an important dimension of health. Examples of such measures are the number of people who died from cardiovascular disease, have had a heart attack, or were hospitalized with asthma. The core indicators include, but are not limited to:

- population;
- environment and health (social environment and health, physical environment and health, built environment and health;
- mortality, morbidity, and health-related quality of life;
- chronic diseases and injuries (chronic diseases, cancer incidence and early detection, injury prevention, and substance abuse prevention);
- behaviour and health (smoking, alcohol, physical activity, nutrition and healthy weights, ultraviolet radiation exposure);
- family health (reproductive health, child and adolescent health);
- mental health;
- infectious disease;
- use of health services.

Surveillance: Surveillance is the systematic and ongoing collection, collation, and analysis of health information in a timely manner (Ontario Public Health Standards, 2008). This means monitoring or "watching" something like a disease or health-related behaviour to guide programs and services (Ontario Public Health Standards, 2008). Historically, surveillance has been associated with infectious disease, but this has been extended to monitoring chronic disease prevention, child health, injury prevention, and reproductive health (Ontario Public Health Standards, 2008). Surveillance data can be obtained from many sources, among them household surveys and laboratories (Ontario Public Health Standards, 2008).

Research and program evaluation: Research is a systematic investigation through purposeful data collection, analysis, and interpretation (Ontario Public Health Standards, 2008). The primary purpose of research is to advance knowledge. Some examples of research include:

- collecting new data, and
- synthesizing existing research findings.

Program evaluation is a systematic method for gathering, analyzing, and reporting data about a program (Ontario Public Health Standards, 2008). This provides important information for program planners and assists in decision-making (Ontario Public Health Standards, 2008). Program evaluation includes either qualitative (focus groups, words), quantitative (surveys), or combined approaches (Ontario Public Health Standards, 2008). Types of program evaluations include:

- needs assessment (produces evidence to support new programs);
- process evaluation (analyzes early program development and implementation); and
- outcome evaluation (measures program efficiency, effectiveness, and impact).

4. KEY ELEMENT FOUR: INTEGRATE MULTIPLE LEVELS OF COMMUNITY SUPPORTS

A rural population health approach uses multiple levels of support from various sectors and levels that have a vested interest in the health of the target population in every phase of the project. For a project to be successful, early collaboration is recommended (Public Health Agency of Canada, 2011). Effective collaboration is more probable when participants have a common goal based on shared interests and values (Public Health Agency of Canada, 2011). This includes but is not limited to researchers, health professionals, community organizations, government, and other key stakeholders.

5. KEY ELEMENT FIVE: IDENTIFY COMMUNITY RURAL HEALTH CHALLENGES AND ASSETS

A rural population health approach calls for the identification of rural health challenges and assets using the SDOH framework. Challenges are informed by population health assessment, surveillance, research, program evaluation, and personal experiences. Examples of challenges are access to health-care services, geographic and social isolation, and poverty (see Appendix B). Assets are advantages and attributes within a community that in rural areas are vital to sustainability and growth. Examples of such assets are physical infrastructure (buildings), green space, social aspects of community living, agriculture, and volunteerism.

6. KEY ELEMENT SIX: ADDRESS RURAL HEALTH CHALLENGES AND MAXIMIZE ASSETS USING GOOD PRACTICES FOR RURAL PROGRAM PLANNING AND DELIVERY.

A rural population health approach involves addressing health challenges and maximizing assets using the social determinants of health framework. This contributes in meaningful ways to the development and implementation of strategies to improve health. This is based on good practices in minimizing rural health challenges and maximizing rural health assets identified in the literature review (see Table 1).

Table 1: Good Practices in Minimizing Rural Health Challenges and Maximizing Rural Health Assets for Rural Program Planning and Delivery

Good Practices	Question	Examples
1. Address a rural health issue. Evidence-informed practice includes population health assessment, surveillance, research, and program evaluation to generate evidence.	Did you address a rural health issue in your community? Rural health issues can be identified as rural health trends, local needs, and emerging issues.	• Unaffordable food • Poverty • High rates of overweight/obesity • High smoking rates • Low uptake of flu immunization
2. Integrate multiple levels of community support.	Did you include health professionals, government, community organizations, and other people in program planning and development?	• Health professionals: health promoters, registered nurses, physicians, etc. • Government: Public Health, Ministry of Health and Long-Term Care, etc. • Community organizations: Heart and Stroke Foundation, Canadian Cancer Society, etc. • Other people: stroke survivors, parents, etc.
3. Adopt and modify existing programs.	Did you change an existing program to meet the needs of your target population?	Change the intensity, length, and scope of an existing program. • Decrease a 16-session Diabetes Prevention Program (DPP) to six sessions. • Provide a condensed version of the program to match the seasonal rhythm of the crops. • Implement DPP in a church-based group setting and include prayer and gospel aerobics.
4. Meet the cultural needs of the population.	Did you meet the cultural needs of the population? (e.g., First Nations, visible minorities, immigrants, those with lower socio-economic status, etc.)	• Integrate healing components in programs that target aboriginal populations. • Provide resources in other languages. • Provide translation services. • Provide a culturally sensitive environment by being aware of and knowledgeable about Low German Mennonites and Aboriginal Peoples.
5. Deliver a flexible program responsive to the demands of rural populations.	Did you modify the delivery of the program to meet the needs of rural populations?	• Home-based services • Telemedicine • Telepsychiatry • Mobile clinics

Good Practices	Question	Examples
6. Provide a no-cost, low-cost, or subsidized program.	Did you provide a no-cost, low-cost, or subsidized program?	• Free or low-cost community events (e.g., health fairs) • Free or low-cost health promotion programs and services (e.g., nutrition workshops, physical activity programs) • Free or low-cost clinical services (e.g., free dental health consultations) • Free or low-cost resources (e.g., books, magazines) • Free or low-cost products (e.g., breast pumps, nipple shields)
7. Provide the program in several geographical areas with high population density and short distance to travel.	Did you provide the program in several areas in the community where there are a lot of people?	• Provided the Mothers' Care Clinic in densely populated areas in Haldimand and Norfolk (Simcoe, Caledonia, and Langton).
8. Provide simple, accurate educational materials, resources, and information for ease of reading.	Did you provide resources at a Grade 5 level? Did you provide materials accessible to persons with disabilities?	• Brochures • Fact sheets • Posters • Books
9. Build on existing strengths in social capital (sense of belonging, inclusion, trust, reciprocity, and participation in community life).	Did you: a. provide a safe, comfortable and friendly atmosphere; b. encourage people to help one another; c. encourage people to participate in their community; d. encourage people to build relationships?	• The Well Baby Drop-in provides a supportive, safe, friendly, and comfortable environment for postpartum females where they can help one another, participate in their community, and build relationships with other moms. • Leverage community support to help develop and mobilize the program (e.g., health promoters, dieticians).
10. Build on existing physical environments (built and natural).	Did you use existing physical (built) environments in your community (e.g., residential, commercial, institutional, and industrial buildings)? Did you use existing natural environments (e.g., green space, open spaces, water, landscape, trails)?	• Use existing buildings to implement program (e.g., churches, schools, government buildings). • Promote outdoor activities using local trails, pathways, lakes, etc.

Rural Health Framework for Program Service Planning and Delivery

Good Practices	Question	Examples
11. Promote existing local programs, services, and resources.	Did you promote existing local programs, services, and resources?	Conduct an environmental scan of existing programs, services, and resources. Some examples: • free family swims at recreation centres, • church events, • OEYC program and services, • Moms and Tots program, • Haldimand and Norfolk Prenatal Health program, • Haldimand and Norfolk prenatal fairs
12. Use health professionals other than physicians and specialists to provide clinical services.	Did you use health professionals other than physicians and specialists to provide clinical services?	• Nurse practitioner • Non-specialists for rural colorectal screening program • Registered nurses • Dental hygienists • Midwives
13. Utilize and adopt a rural outreach model.	Did you provide the program in areas spread over a large geographic area (but not necessarily, where many people live)?	• Mobile Clinics • Travelling vans
14. Provide transportation.	Did you provide transportation?	• Car Pool • Van

APPLICATION OF THE RURAL HEALTH FRAMEWORK FOR PROGRAM PLANNING AND SERVICE DELIVERY: INFLUENZA IMMUNIZATION PROGRAM

To illustrate the framework's usability, the Haldimand-Norfolk Health Unit (HNHU) applied it to several programs including its immunization program, which provides routine immunization services for infants, children, youth and adults, as well as annual flu clinics for those six months of age and older. The purpose of the immunization program is to provide resources that help minimize anxiety by emphasizing the safety and efficacy of publicly funded vaccines, and to reduce the incidence of vaccine-preventable diseases in the community. This health unit serves Haldimand and Norfolk counties, which have a combined population of 107,775, with a population density 37.7 people/km^2 (Statistics Canada 2009) and is considered a predominantly rural area. Multiple levels of community support can be integrated into this program: health professionals (public health nurses, nurse practitioners, physicians, pharmacists), community organizations (pharmacies, nursing agencies, community support services), government (Public Health, Ministry of Health and Long-Term Care, long-term care homes) and other key stakeholders (major steel and power industries). Rural health challenges and asset identification and generated solutions are presented in Table 3, (see Appendix C). The application of the rural framework has assisted public health providers to better provide appropriate and adequate resources to help minimize anxiety by emphasizing the vaccine's benefits, efficacy, and safety, and to increase uptake of the vaccine. Although the initial focus was to apply the framework only to chronic disease programs, it was clearly adaptable to any rural health program. This illustrated the broad utility of the framework as well as demonstrated that rural health programs and approaches can be more effective when related to health determinants.

DISCUSSION

The lack of information on best practices for health planning in rural areas challenges program planners to develop relevant and effective health promotion programs for rural communities. The rural health framework described here provides an opportunity for policy makers and program planners to reflect on the key issues facing rural communities to ensure the development of strategies that will prudently and effectively meet population health needs. Within this rural framework, health approaches and programs are linked to an understanding the rural community and emphasize rural health asset-mapping and challenge identification. Based on a rural perspective, frameworks of this type have the potential to assist program planners in improving the health status of a rural community.

In application to existing programs within the health unit, it became evident that these programs, without formal documentation, already incorporated aspects of the rural health framework and employed key elements of rural program planning and delivery. This afforded staff the opportunity to showcase their programs and secure their position as "leaders in rural health." The framework also provided an opportunity to identify gaps in service with the development of action strategies to overcome these gaps.

The ultimate aim of this rural health framework is to assist program planners to improve the health status of rural populations. Limitations of the framework that require further exploration include the lack of an evaluation component as well as a promotion and communication strategy. Further research is needed to demonstrate significant changes in specific health indicators (e.g., incidence of influenza A, incidence of diabetes, smoking rates, obesity rates, mortality due to cardiovascular disease) and health behaviors (e.g., number of influenza vaccines administered, enrollment in local exercise programs, attendance at well baby and breast-feeding drop in clinics). Further research, using qualitative approaches, is also needed on the perspectives of program planners using this framework in terms of ease of use, challenges, gaps, and opportunities for improvements. More research is needed on the efficacy of this framework when applied early in the planning process and development phases of new health programs.

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APPENDIX A

Table 1: Results of the Literature Review

Author, Country	Health Topic/ Study Purpose/ Methods	Determinants of Health/ Targets	Health Promotion Strategies	Results
Cotterill et al., 2005 Canada	Cancer: To develop a safe and effective colorectal cancer screening program in small rural communities using colonoscopy performed by non-specialist endoscopists. Method: Process evaluation of the program every six months.	Health services/ Sector/System	Reorientation of health services	Able to design and implement colorectal cancer screening in a small centre with no great effort using non-specialists.
Summersett et al., 2003 United States	Diabetes: To determine whether the care of children with type 1 diabetes treated by pediatric endocrinologists in a rural outpatient clinic is comparable to the care of children treated in an urban medical centre by the same diabetes team. Method: Retrospective cohort study	Health services/ Sector/System	Reorientation of health services	Urban patients were more likely complete four visits per year than a matched group at the rural clinic. They were also significantly more likely than those in the rural clinic to have four HbA1c measurements per year, more likely to have an assessment by a behavioural specialist and to have a visit with a nutritionist during the year.
Mayer et al., 2004 United States	Diabetes/ Weight Management Strategies: To evaluate lifestyle interventions for diabetics who live in rural communities. Method: Randomized Control Trial	Personal health practices and coping skills/ Individual Community	Personal skill development	Intervention resulted in greater weight loss than among usual-care participants; no differences in weight change were observed between reimbursable-lifestyle and usual-care participants.
Virani et al., 2006 Canada	Diabetes/ Aboriginal Communities: To identify diabetes complications through screening using portable laboratory equipment in aboriginal communities, and providing client empowerment and education for improved follow-up care and self-care.	Physical environment, Health services, Personal health practices and coping skills, Culture / Community Sector/System Individual	Reorientation of health services, Personal skill development, Creation of supportive environments	There were modest improvements in some program outcomes at the 6-12 month follow-up. Successful implementation was facilitated by community acceptance.

APPENDIX A: Rural Health Framework for Program Service Planning and Delivery

Author, Country	Health Topic/ Study Purpose/ Methods	Determinants of Health/ Targets	Health Promotion Strategies	Results
Ho et al., 2006 Canada	Diabetes/ Aboriginal Communities: To develop a multi-institutional diabetes prevention program based on the successful Sandy Lake Health and Diabetes Project and Apache Healthy Stores Programs.	Social environment, Culture, Health services, Personal health practices and coping skills/ Community Individual	Development of personal skills, Creation of supportive environments	School-based prevention program identified as the most popular intervention. Variations in health beliefs, attitudes, and environmental conditions required tailoring programs to each reserve. Demonstrated the importance of formative research in developing health-promotion programs for multiple communities based on previously evaluated studies.
Jin et al., 2003 Canada16	Diabetes/ Aboriginal Communities: To describe and evaluate a program to improve access to diabetes care for Aboriginal Peoples in northern communities. Program involved a diabetes nurse educator and an ophthalmic technician who travelled to aboriginal reserves offering diabetes services.	Physical environment, health services, Personal health practices and coping skills, Culture/ Community Sector/System Individual	Reorientation of health services, Personal skills development, Creation of supportive environments	High levels of client satisfaction. The mobile clinic is not only cost-effective, but also demonstrated improved access to the recommended standard of diabetes care.
Potvin et al., 2002 Canada	Diabetes: Description of four principles as basic components for an implementation model of community programs.	Social environment, Health services/ Community	Reorientation of health services, Creation of supportive environments	Present an emerging implementation model for community interventions that negotiates applicability to unique communities. Identification of key lessons learned that are useful for other communities.

Author, Country	Health Topic/ Study Purpose/ Methods	Determinants of Health/ Targets	Health Promotion Strategies	Results
Daniel et al., 1999 Canada	Diabetes/ Aboriginal Communities: To describe a summative evaluation of a community-based diabetes prevention and control project in an aboriginal population in British Columbia, Canada. Method: Quasi-experimental	Health services, Personal health practices and coping skills, physical environments/ Individual Community Sector/System	Reorientation of health services, Personal skill development, Creation of supportive environments	The project yielded few changes in quantifiable outcomes. Systematic evaluation is needed to determine why the project was effective or not, how it could be improved, and how it might be adapted for specific sub-populations.
Davis-Smith, 2007 United States	Diabetes: To determine the feasibility of implementing a diabetes prevention program in a rural African-American church. Method: Six session program with 12-month follow-up.	Social environment, Personal health practices and coping skills, Health services, Culture/ Community Sector/System Individual	Reorient health services, Personal skill development Creation of supportive environments,	Weight loss and a decrease in fasting glucose were seen after the intervention and 12-month follow-up. The study demonstrated the ability to identify an at-risk population and modify an existing program to a group format.
Sherman et al., 2007 United States	Physical Activity: To determine the effect of a brief primary care walking intervention (pedometer, exercise videotape, and exercise counselling) in rural women. Method: Education and counselling, follow-up over 6 months.	Personal health practices and coping skills, Health services, Social support network/ Individual Community	Personal skill development	Program was effective in increasing the short-term walking rates. At follow-up participants increased their step counts by a mean of 2573 steps per day. Increases in step counts were seen in normal weight, overweight, and obese participants.
Balamurugan et al., 2007 United States	Arthritis/ Physical Activity: To review findings and lessons learned from a rural health communications campaign. Method: Survey design	Education, Social environment/ Community	Strengthen community action, Creation of supportive environments	A high percentage reported having seen or heard the message; however, only 11% recalled the campaign message. Challenges faced during the campaign implementation included limited finances, resources, and staff; time constraints; and distrust. If resource constraints exist, leveraging partnerships and building trust among community residents are important for achieving campaign success.

APPENDIX A: Rural Health Framework for Program Service Planning and Delivery

Author, Country	Health Topic/ Study Purpose/ Methods	Determinants of Health/ Targets	Health Promotion Strategies	Results
Zavela et al., 2004 United States	Substance Use: To evaluate the Say Yes First to Rural Youth and Family Alcohol/Drug Prevention (SYF) program, which utilized a case management, education and family intervention approach. Method: National Youth Survey Follow-Up Questionnaire; quasi-experimental design.	Health services, Social environments, Personal health practices and coping skills/ Individual Community	Personal skill development, Creation of supportive environments	Program participants' experienced lower usage of alcohol, tobacco, and drugs, lower lifetime prevalence of marijuana use, higher course grades, lower school absenteeism, more positive attitudes toward school, less trouble in school, and less negative self-appraisal than comparison groups.
Ebbesen et al., 1997 Canada	Ebbesen et al., 1997 Canada	Health services, Social environments, Physical environments, Personal health practices and coping skills/ Individual Community	Personal skill development, Creation of supportive environments	Program was facilitated by formation of a community health network; may have the potential for adoption by similar communities.
MacDonald, 1999 Canada	Heart Health: To assess the impact of the Cardiovascular Health Education Program (CHEP) on the cardiovascular health knowledge of grade 8 students. Method: A quasi-experimental, non-equivalent control group pretest-post-test design	Health services, Social environments, Personal health practices and coping skills/ Individual Community	Personal skill development, Creation of supportive environments	Program had a significant impact on the cardiovascular health knowledge of the rural adolescents, but not their urban counterparts. Demonstrated that nurses can design, implement, and evaluate community-based health promotion programs.
Huot et al., 2004 Canada	Heart Health: To evaluate a five-year, multifactorial community-based heart disease program was conducted by regional public health departments on three sites: urban, suburban, and rural. Method: Quasi-experimental; experimental and control communities	Health services, Social environment, Personal health practices and coping skills/ Individual Community	Personal skill development, Creation of supportive environments	The intervention did not have measurable effects on dietary behaviour. Efficacy may be improved by considering physical and social environments as well as public policy changes.

Author, Country	Health Topic/ Study Purpose/ Methods	Determinants of Health/ Targets	Health Promotion Strategies	Results
Nafziger et al., 2001 Scandinavia	Heart Health: To compare and contrast rural cardiovascular community intervention programs (CCIP) in northern Sweden, and determine their effectiveness in reducing cardiovascular disease. Method: Quasi-experimental; comparison of two international rural communities.	Health services, Social environment, Personal health practices and coping skills/ Individual Community	Personal skill development, Creation of supportive environments	Individually effective; methodological constraints did not allow for cross community comparisons. Identified key facilitating factors for both programs. by similar communities.
Weinehall et al., 2001 Sweden	Heart Health: To evaluate the 10-year outcomes of a northern Sweden community intervention program for the prevention of cardiovascular disease (CVD), with special reference to social patterning or risk development. Method: Quasi-experimental design.	Health services, Social environment, Personal health practices and coping skills/ Individual Community	Personal skill development, Creation of supportive environments	There were significant differences in changes to total cholesterol and systolic pressure between the intervention and the reference populations; after adjustment for education and age, predicted coronary heart disease mortality was reduced by 36% in the intervention area and by 1% in the reference area. Socially less-privileged groups benefitted most from this program.
Berkowitz, 2004 United States	Policy/Rural Public Health Service Delivery: To define and describe variations in rural health service delivery and how communities meet the challenges of public health practice. Method: Synthesis of the literature/opinion	Health services/ Society, Sector/System Community	Reorientation of health services, Development of healthy public policy	Networks and collaboration created by local health departments serve as powerful assets in rural communities. Importance of evaluating and testing models conducive to rural health collaboration is emphasized.

APPENDIX A: Rural Health Framework for Program Service Planning and Delivery

Author, Country	Health Topic/ Study Purpose/ Methods	Determinants of Health/ Targets	Health Promotion Strategies	Results
Berkowitz et al., 2002 United States20	Policy/ Research: To provide an overview of rural public health policy and research implications.	Health Services, Society Sector/System Community	Reorientation of health services, Development of healthy public policy	Identified key issues in policy formation related to defining the system and infrastructure issues, providing incentives to respond to rural needs rather than to a predetermined set of federal initiatives, reach, information technology, and leadership. Promising initiatives are identified.
Schumaker, 2002 United States	Policy/Model/Interorganizational Networks: To compare four rural health-care delivery networks to an interorganizational model based on theories of interorganizational relations, exchange, population ecology, and synthesized collaboration. Method: Survey design	Health services/ Society Sector/System Community	Reorientation of health services, Development of healthy public policy	Correlation and multiple regression analysis show a partial fit between the research model and the study networks. Effectiveness increased with network connectivity, group methods of administrative decision-making, and sequential pattern or service delivery. The integrated interorganizational model demonstrates some efficacy for testing potential effectiveness of networks.
Estey et al., 2007 Canada36	Policy/Aboriginal/ Chronic Respiratory Diseases: To describe the benefits of understanding chronic respiratory diseases in aboriginal populations, drawing attention to the need for well-rounded, high-quality aboriginal respiratory health research. Method: Literature Review	Health services, Society, Sector/System, Community	Reorientation of health services, Development of healthy public policy	Life course epidemiology approaches can be used to broaden our understanding of and management of chronic diseases and to reduce the development of risk factors.

Author, Country	Health Topic/ Study Purpose/ Methods	Determinants of Health/ Targets	Health Promotion Strategies	Results
Hart et al., 2005 United States	Policy and Research/ Rural Definitions: To report on a literature review on the definition of "rural" for health policy and research purpose; several useful rural taxonomies are discussed and compared.	Health services/ Society Sector/System Community	Reorientation of health services, Development of healthy public policy	There is no perfect rural definition; selected definition should take into account various rural definitions and geographic methodologies, weighing the pros and cons of available definitions.
Cupertino et al., 2007 United States	Smoking: To evaluate a smoking cessation program involving telephone-based counselling sessions on long-term engagement in counselling for smoking cessation and factors associated with engagement. Method: Randomized control trial	Health services, Social environments, Personal health practices and coping skills / Individual and Community	Personal skill development, Creation of supportive environments	60% of continuing smokers remained engaged in treatment at 6-month follow-up. Education, age, motivation, income, diabetes, and health insurance status were predictors of engagement in the treatment.
Hayward et al., 2007 Canada	Smoking/ Aboriginal Communities: To investigate an exploratory, comparative study of the utilization and effectiveness of tobacco cessation quitlines among aboriginal and non-aboriginal Canadian smokers. Method: Exploratory, comparative study	Health services, Social environments, Personal health practices and coping skills/ Individual Community	Personal skill development, Creation of supportive environments	Without a targeted promotion, aboriginal smokers do call Canadian quitlines, primarily for health-related reasons. Quitlines are effective at helping them to quit, and can reach a large proportion of smokers in a cost-effective manner; effective addition to aboriginal tobacco cessation strategies.
Avidano Britton et al., 2005 United States	Smoking: To evaluate the effectiveness of a nurse-managed cessation program that was integrated into routine prenatal care. Cessation rates of pregnant smokers in a rural community were reviewed and the subjects' characteristics associated with smoking cessation success were assessed. Method: Quasi-experimental design	Health services, Social environments, Personal health practices and coping skills/ Individual Community	Personal skill development, Creation of supportive environments	Program influenced the smoking behaviours of recent quitters, but had no effect on those reported smoking at the first prenatal visit.

APPENDIX A: Rural Health Framework for Program Service Planning and Delivery

Author, Country	Health Topic/ Study Purpose/ Methods	Determinants of Health/ Targets	Health Promotion Strategies	Results
Kaufman et al., 2007 United States	Mental Health/Older Adults: To describe the initial phase of Project to Enhance Aged Rural Living (PEARL), a five-year, research study to test the effectiveness of providing home-based cognitive behavioural therapy to medically frail seniors living in rural communities. Method: delayed treatment control design.	Health services, Personal health practices and coping skills/ Community Sector/System Society	Personal skill development, Creation of supportive environments	Description of challenges encountered when recruiting rural seniors to participate in this study and experiences with providing mental health services to rural seniors are discussed. Potential solutions include capacity building, advocacy for resource allocation and increased understanding of the existing cultural context of rural communities
Greenberg, 2006 Canada	Mental Health: To explore user perspectives and experiences of a pediatric telepsychiatry program serving rural to inform future benefits of program development and health policy. Method: Focus group interviews	Health services, Personal health practices and coping skills/ Community Sector/System Society	Creation of supportive environments	The telepsychiatry service was well received. There is a need for additional local services to support treatment recommendations.
Thomas & Bellefeuille, 2006 Canada	Mental Health/ Aboriginal Communities: To report on the formative evaluation of a Canadian cross-cultural aboriginal mental health program combining properties of the aboriginal healing circle with self-awareness and empowerment strategies. Method: Qualitative design using grounded theory	Health services, Culture/ Community Sector/System Society	Reorientation of health services, Creation of supportive environments	Five themes captured participants' experiences with the program: experience, relationships, spirituality and connectedness, empowerment, and self-awareness. Findings highlight the need to ensure the worldview of Aboriginal communities is acknowledged and incorporated into practice.

Author, Country	Health Topic/ Study Purpose/ Methods	Determinants of Health/ Targets	Health Promotion Strategies	Results
Lee et al., 2004 United States	Injury Prevention/ Youth: To evaluate a rural youth health and safety initiative implemented in 4000 National FFA (formerly Future Farmers of America) chapters across the United States Method: Cluster-randomized, controlled trial design	Health services, Social environments, Personal health practices and coping skills / Individual Community	Personal skill development Creation of supportive environments	No significant effect of this initiative on agricultural health and safety knowledge, safety attitudes, leadership, self-concept, and self-reported injuries of project participants; results showed the program failed to develop sustainable community partnerships.
Fogelholm et al., 2006 Finland	Chronic Diseases: To describe the setting and design of the Good Ageing in Lahti Region (GOAL) program by using baseline results of the goal cohort study to examine whether living in urban, semi-urban, or rural communities is related to risk factors for chronic diseases and functional disability in aging individuals. Method: Survey design and laboratory assessments	Personal health practices and coping skills/ Community Sector/System Society	Personal skill development, Development of healthy public policy	Elevated serum cholesterol, obesity, sedentary lifestyle, and high fat intake were more prevalent in rural than urban and semi-urban populations; rural communities had increased probability for high body mass index. The differences in health among community types were influenced by education, background, physical activity, and smoking.

APPENDIX B: RURAL HEALTH CHALLENGES

Step 1: Rural Health Challenges Identification

The first step is to identify rural health challenges using the SDH framework for the community of interest. Some common rural health trends and issues not specific to any particular rural community are listed below. This list is non-exhaustive; it merely provides examples to program planners. Moreover, program planners should also use challenges specific to a rural community based on population health assessments and lived experiences.

a. **Income and Social Status**
Challenges: Challenges: Unstable income, poverty, low-paying and seasonal jobs; unaffordable housing; no insurance; dependency on male spouses; unaffordable child care; unaffordable healthy foods, especially in the off-season; few large employers in industry or business; large gap between rich and poor.

b. **Social Support Networks**
Challenges: Geographic and social isolation; lack of confidentiality and anonymity; less ethnically diverse; lack of civic participation and leadership in some community health initiatives; lack of acceptance of newcomers.

c. **Education and Literacy**
Challenges: Low education and literacy levels.

d. **Employment and Working Conditions**
Challenges: Higher unemployment, higher underemployment; greater vulnerability to economic downturns; seasonal living conditions (e.g., bunk houses); commute to urban centres for work; lower-paying jobs, higher turnover; greater burden of occupational health problems.

e. **Social Environments**
Challenges: Limited social support systems; services outside of rural area; culturally sensitive health issues may not be available; much less activity than in the city; health and social services are available in more densely populated areas; high number of social service clubs; programs developed by urban planners for urban residents are implemented in rural settings; unmet need for mental health services; rural women do not feel equipped to deal with mental health issues.

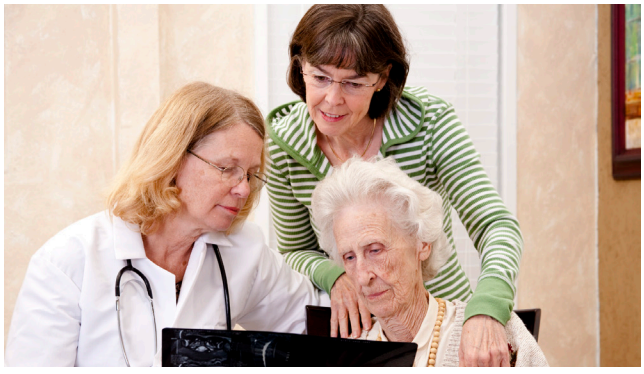
f. **Physical Environments**
Challenges: No public transportation; long distance to specialists, health-care providers, amenities, and other services; long distance to tertiary hospitals; low population density; not attached to adjacent metropolitan area, longer distance to travel; unsafe roads (unlit, poorly signed; shoulders may be missing or poor); sports and recreational facilities are available outside of rural community; lack of shopping amenities; geographically sparse population.

a. **Personal Health Practices**
Challenges: Prevalence of obesity, physical inactivity, drinking and smoking; insufficient consumption of vegetables and fruit; higher rates of unintentional injuries, particularly motor vehicle traffic crashes, falls, and ATVs; drinking and driving; more exposure to second-hand smoke, poisoning, and violence; older adults living in rural areas report higher levels of domestic and financial abuse than urban counterparts.

b. **Biology & Genetic Endowment**
Challenges: High rates of circulatory diseases, respiratory diseases, diabetes, injuries, suicide, and mental health issues; life expectancy is lower than the Canadian average; high disability rates, least healthy, have the lowest life expectancies and disability-free life expectancies in northern communities; high mortality rate; high unintentional injury-related deaths; high cancer-related deaths, cervical cancer is high, men aged 45 to 64 have higher rates of lung cancer.

c. **Health Services**
Challenges: Few specialists and practitioners; difficult to recruit and retain specialists and practitioners. Limited access to health-care services, residents travel outside of community to obtain services. Less diagnostic equipment and fewer treatment options; limited and delayed emergency services; few nurses; high cost and low patient volume at rural hospitals. Trauma patients die twice as often as those in urban areas due to time, lack of training, and distance. Underdeveloped mental health services, poor access to acute services, lack of health promotion programs; under-servicing of special needs groups such as seniors and people with disabilities and mental health issues. Hospitals and services have been undergoing restructuring and merging into larger urbanized delivery systems; health care has been increasingly centralized, reduced or eliminated; hospital-based services have been reduced without fully developing or enhancing community based-services.

d. **Culture**
Challenges: High seniors' population; aboriginal populations tend to have poorest health (low income, low levels of education, unemployment, inadequate housing, exposure to environmental contaminants, and a long legacy from the residential school era). Not multicultural, less ethnically diverse; women have multiple roles (working and juggling family, farming and volunteering); rural men receive less treatment for mental illness than do rural women and urban men.



APPENDIX C

Table 3: Application of the rural health framework to the planning and delivery of an influenza immunization program: Identified challenges, assets and solutions for key social determinants of health.

Social Determinants of Health	Rural Health Challenges	Rural Health Assets	Solutions to Health Challenges/Maximize Assets
Social support networks	• Geographic and social isolation.	• Strong social capital (sense of belonging, inclusion, trust, participation in community life)	• Leverage health professionals in the community to mobilize the program. • Foster community engagement by integrating organizations and businesses to implement and mobilize the program (pharmacies, industry). • Leverage government partnerships to implement and mobilize the program. • Educate nurses, health professionals, and the public on the vaccine's efficacy and safety. • Encourage clients to ask questions about immunization and consult with their family physicians or other care providers.
Education and literacy	• Over 50% of the population has secondary school education or less, which is greater than the provincial average. • Low literacy levels.		• Provide simple, easy-to-read educational materials on influenza and flu immunization. • Encourage clients to ask questions about immunization, their health, and the health of their family.
Social environments	• Limited social support services	• Strong social and community response to vaccine-preventable diseases.	• Provide flu clinics in various locations throughout counties. • Leverage multiple levels of support in the community to build public trust in the vaccine's efficacy and safety. • Minimize anxiety about the vaccine's safety and efficacy by educating nurses, health professionals, and the public on the impact of influenza on absenteeism, and on possible side effects and contraindications. • Promote immunization in the community.

Social Determinants of Health	Rural Health Challenges	Rural Health Assets	Solutions to Health Challenges/Maximize Assets
Physical environment	• Limited public transportation. • Low population density. • More distance to travel.	• Grand Erie District School Board • Catholic District School Board • Thriving churches	• Utilize a rural outreach model to deliver the program in several geographical areas with high population density and short distance to travel. • Provide the clinic in local schools, the Norfolk Community Help Centre, the Health Unit and a centrally located church. • Encourage community members to provide transportation to residents with no access to transportation.
Personal health practices and coping skills	• Uptake of the vaccine is very poor; possibly due to complacency among health professionals about rates and existing misinformation about adverse effects. • Over 50% of residents are overweight or obese and at high-risk for influenza.	• Strong social and community response to health issues • The community values infants, children and families • Existing free social and community activities (free family swim at the Recreation Centre, church events, OEYC program and services, Moms and Tots Program etc.) • Churches are thriving in Haldimand and Norfolk	• Promote the uptake of the influenza vaccine, particularly among high-risk groups. • Emphasize the vaccine's benefits over its risks. • Provide resources that help minimize anxiety by emphasizing the vaccine's benefits, efficacy, and safety. Provide education on possible side effects and contraindications of the vaccine as well as the impact of influenza on absenteeism.
Culture	• Anticipated increase in number of citizens over 55 years of age; expected to increase by 73% between 2000 and 2020. • High-risk groups: nursing home residents; those requiring chronic care.		• Promote the uptake of the influenza vaccine, particularly among high-risk groups. • Emphasize the vaccine's benefits over the risks. • Provide resources/ education for older adults that help reduce anxiety by emphasizing the efficacy and safety of the vaccine, possible side effects and contraindications of the vaccine as well as the impact of influenza on absenteeism. • Offer clinics at the Community Help Centre; provide translation services.

APPENDIX C: Rural Health Framework for Program Service Planning and Delivery

Social Determinants of Health	Rural Health Challenges	Rural Health Assets	Solutions to Health Challenges/Maximize Assets
Healthy child development	• High-risk groups: children aged two to four years. • The percentage of new mothers with low education is increasing (5.2% in 2005 to 8.2% in 2009).		• Provide parents with simple, easy-to-read educational materials, resources, and information on child immunization to help promote the vaccine's efficacy and safety.
Health services	• Low number of specialists and practitioners. • Limited access to health-care services; many travel outside counties to obtain services. • Under-servicing of children and Low German Mennonites. • Few walk-in clinics. • Difficult to recruit and retain specialists and practitioners.	• Three general hospitals in the area	• Provide free and accessible flu clinics within the community